Introduction
Proper nutrition is important for everyone, but nutritional needs vary. Sports nutrition is the application of nutritional principles to enhance sports performance. Athletes of different sports should all consume a well-balanced, healthy diet from a variety of different foods. The more activity performed by a person regularly, the more calories need to be consumed. Covered below are the nutrients that the average athlete should consume, and when and what to eat before, during, and after competition for best performance.

Energy
Food is what gives the body energy to work. Depending on the duration and intensity of exercise, the energy source (i.e., type of food source) used varies. Carbohydrates, fat, and protein are all food sources that contribute to the energy needs during exercise and rest. Carbohydrates are the body’s preferred energy source, fat is secondary, and protein is used the least often as a source for energy. Protein is more useful for building muscle and other tissues. Different types and intensities of exercises use more of one type of energy than another. For example, fat is generally the major energy source during low-intensity exercise and carbohydrates are generally the main energy source during high-intensity exercise.

Although fat is the main energy source during low-intensity exercise, the total energy expended (calories burned) during exercise is more important than what is being used for energy during exercise. Therefore, doing low-intensity workouts regularly will not yield better results for weight loss in comparison to moderate- to high-intensity workouts.

Carbohydrates
Carbohydrates (“carbs”) are the main energy source from food. Foods high in carbs include milk and yogurt, grains, fruits, and vegetables. They are typically quick and easy to digest, and they are easily accessible for energy consumption. The body stores carbohydrates in the liver and skeletal muscle as glycogen, an easily accessible energy source. The recommended dietary allowance (RDA) is a minimum of 130 grams of carbs per day, and the National Institutes of Health Institute of Medicine recommends that 45 to 65 percent of daily intake consist of carbs. For athletes, the higher end of the recommendations should be consumed and distributed evenly throughout the day. As an idea of how much that may be, a person with a 3,000-calorie diet should consume 450 grams of carbs, which would make up 60 percent of your diet. Carbohydrates are especially important for athletes because they are a great energy source both for aerobic and anaerobic exercise.

Fat
Fat is an efficient form of energy. Fat is generally used as an energy source during moderate to vigorous exercise, but carbohydrates become more important over fats during intense exercise. Fat is also a useful energy source during rest. There are different types of fats: monounsaturated, polyunsaturated, and saturated. Monounsaturated and polyunsaturated are the healthiest types of fats. A good example of a monounsaturated fat is extra virgin olive oil, often used in salad dressings. Good sources of food containing polyunsaturated fats are nuts and fish. The oils within those foods contain healthy fat and are great for the body and brain. Saturated fats should be less than 10 percent of total calories. Some examples of saturated (unhealthy) fats are beef, pork, butter, and poultry with skin. It is recommended that 30 percent of your diet consist of fat. Dietary fats are most important for endurance sporting events. Additional examples of dietary fat sources are low-fat dairy products, lean meats, nuts and nut butters, and fish.

Protein
Although protein is one of the most important essential nutrients, it is not the body’s preferred source of energy. Protein is the “building block” of tissues in the body. It forms the structure of body tissue and is a component of enzymes within the body. Protein is especially important for strength and endurance athletes. The recommendation for protein intake is 10 to 35 percent of your diet per day. The most complete protein
Examine Your Choices

<table>
<thead>
<tr>
<th>Beverage</th>
<th>What I Do Now</th>
<th>What I Plan to Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sports Drink</td>
<td>Drink Gatorade before, during, and/or after competition.</td>
<td>Drink only water, unless exercising for more than two hours.</td>
</tr>
<tr>
<td>Protein Shake</td>
<td>Use whey protein powder.</td>
<td>Drink a glass of plain or chocolate milk.</td>
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</tbody>
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The American College of Sport Medicine states that no single food group works for every athlete as a precompetition meal; each athlete has to see what works best before competition for their body.

Water and Electrolytes
We sweat when we exercise and thus have to replenish our bodies with what was lost. Sweat is composed mostly of water, sodium, chloride, and potassium. Plain water is almost always the best drink of choice before, during, and after competition. For endurance athletes who are exercising or competing for a long period of time (two hours or more) at a high intensity, sport drinks may be necessary to replenish electrolytes (sodium, chloride, potassium) in the body and replace lost carbohydrates quickly. Staying adequately hydrated is extremely important for proper body function and temperature regulation. The amount needed per person is individualized. The American College of Sport Medicine recommends that athletes hyperhydrate (consume a little more water than usual) days before competition and, of course, rehydrate after competition in order to prevent dehydration and ensure best performance.

If you are feeling thirsty, that means you are already dehydrated. The easiest way to determine if you are dehydrated is by the color of your urine. Urine should be clear and very light yellow.

Before Competition
Precompetition meals can be very important and applicable to any sport, competition, or major exercise that is going to be performed. Timing and composition of the meal are the most important factors. Breakfast is the most important meal of the day! A substantial breakfast comprising foods like skim milk, whole grains, eggs, orange juice, and toast is ideal. Skipping breakfast can possibly cause very low blood sugar, which has an effect similar to fasting. With a precompetition meal, you want to allow enough time (about two hours) after eating so that your stomach is relatively empty at the start of the competition. This way your body has time to digest the food and absorb the needed nutrients from the meal.

Precompetition meal plans for all ages and athletes:
- **Morning events**: The meal should be similar to a substantial breakfast.
- **Early to mid-afternoon events**: Eat a more substantial breakfast and a precompetition lunch. A good example of a precompetition lunch or dinner could be a sandwich consisting of a lean meat (amount similar to the size of the palm of your hand, about 7 grams of protein), a slice of cheese (7 grams of protein), desired vegetables (lettuce, tomato, onion, etc., about 2.6 grams of protein), all on whole-grain bread (3.6 grams of protein per slice), with a side of fruit and vegetables (about 2.6 grams of protein) and water.
- **Late afternoon events**: Eat a substantial breakfast, lunch, and snack (fruits, bagels with peanut butter and jelly, fresh vegetables, or other easily digestible foods).
- **Evening events**: Eat a substantial breakfast and lunch. Dinner would be the precompetition meal.

During Competition
For most sports, eating during competition isn’t necessary. The only thing that should really be consumed during competition is water. Athletes doing long-duration and/or high-intensity exercise may have to consume carbs during competition.

After Competition
If no more competitions will occur on the same or following day, a normal, well-balanced diet will suffice after the competition. Carbohydrates and fluids may be important for the athlete to consume before the next competition. Protein can also be important to consume after the competition, especially if a great amount of stress was put on the muscles. Protein can be consumed in different forms, whether through a meal with protein-rich foods (preferred), milk, or chocolate milk, or through supplements like protein shakes within the recommended amount provided for the source per your body size (only recommended if you cannot meet protein needs with a balanced meal).

**Sources**

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